

## II Remarks

The undersigned wishes to thank Examiner Daniel A. Nolan for the courtesy extended to him during telephone conferences conducted during preparation of the Response.

As to the required correction of the drawings, amended FIGs. 2 and 8 are enclosed for the approval by the Examiner.

As required by the Examiner, a Substitute Specification containing the revised Background of the Invention, Summary Of The Invention, Detailed Description of the Preferred Embodiment and Abstract of the Disclosure accompany the Response. It should be noted, however, that the Substitute Specification includes the originally filed set of claims. The amended set of claims is presented in this Response.

As to the Examiner's remarks presented in paragraph 7 of the Office Action, the following amendments are made to the specification. The term "speech recognition" was substituted throughout the specification for the term "voice recognition". The plural word "Figures" was introduced in the first paragraph on former page 23 of the Application. The Summary Of

The Invention has been amended to satisfy the requirements of MPEP, Paragraph 608. 01(b). The term "microcontroller unit" has been inserted next to the acronym "MCU" on the former page 12 of the Application.

Furthermore, the specification has been checked to the extent necessary to determine the presence of minor errors. All the above-discussed amendments are reflected in the attached Substitute Specification.

In Paragraph 9 of the Office Action the Examiner indicates that the specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner indicates that the disclosure that a pause may be substituted for a syllable (see page 6) will not support either a claim where the pause is measured in terms of syllables, nor a potential claim of a pause consisting of multiple syllables (see claims 6 and 17). A more appropriate unit to designate measurements and duration, or for representation of multiple pauses is required by the Examiner.

Applicants respectfully disagree with the above-discussed position of the Examiner. A syllable is the perfect measure of a pause. In this

respect, it is a well known fact that a pause between quickly spoken words is shorter than a pause between slowly spoken words.

There is clear evidence that poets and writers often substitute pauses for syllables. This occurs, for example, when a poet or writer needs to insert pauses, so the number of syllables for each line of poetry is consistent. Exhibits A and B demonstrate this usage. It is clearly illustrated in the attached Exhibit A that (1) a syllable is a commonly accepted measure of the duration of pause, and (2) in terms of measuring the length of a pause, the syllable is a clear alternative for using the units of time (such as minutes) for the same purpose. The attached Exhibit B further demonstrates that it is known for a pause to be measured in terms of syllable or that a pause can be measured by multiple syllables.

This technique has been fully explained and further developed by the present application. In this respect, please refer, for example, to the paragraph bridging pages 19 and 20 of the originally filed case. For example, it is specified there that "The duration of the pause model 164 between each command word may vary depending on the particular speaking style of the user (ers) but should be at least one syllable (about 200

msec.) in length.” It is further indicated there that to increase a command detection accuracy, a pause may be added before and/or after each command word. “Thus, instead of a two-syllable command for “lightson”, a three-syllable command “lights<pause>on” increases the FOM, while a five-syllable command “<pause>lights<pause>on<pause>” greatly increases the FOM without increasing the number of words in the voice command.”

The language of the former page 6 Application (see the attached Substitute Specification) has been slightly amended to clarify this feature of the invention. It is respectfully considered that no new matter is introduced into the Application by this amendment.

Applicants have noted that claims 2-5, 10-15 and 17 are objected to as being dependent upon the rejected base claim but would be allowable if re-written in the form suggested by the Examiner in the Outstanding Office Action.

Claim 1 has been amended to include the limitations of the allowable claim 2 and therefore is allowable. Claims 3, 4, 5, 6 and 7 are directly or indirectly dependent upon allowable claim 1, do not contain independently

patentable subject matter and therefore should be allowable. Independent claim 8 has been amended to incorporate the limitations of the allowable claim 10 and therefore is also allowable. Claims 9 and 11-17 are directly or indirectly dependent upon allowable claim 8, do not include independently patentable subject matter, and also should be allowable. New claim 27 represents allowable claim 17 re-written in independent form and also should be allowable.

Claim 17 has been amended to overcome the Examiner's rejection under 35 USC 112, 2<sup>nd</sup> paragraph, as being indefinite. The amended version of claim 17 satisfies the requirements of 35 USC 112 and particularly point out and distinctly claim the subject matter of the invention.

The claims 2, 10 and the claims 18-26 have been canceled without prejudice. Thus, the claims amendment presented in the Response should place all claims remaining in the Application in condition for allowance.

In the Outstanding Office Action claims 1, 6, 8, 9 and 16 were rejected under 35 USC 103(a) as being unpatentable in view of U.S. Patent

6,208,971 to Belegarda, et al. in view of U.S. Patent 5,086,385 to Launey, et al. Claim 7 has been rejected under 35 USC 103(a) as being obvious over the Belegarda, et al reference in view of the Launey, et al. reference and further in view of U.S. Patent 5,890,121 to Borcharding. Applicant respectfully considers that this rejection of the Examiner is moot in view of the amendment of the claims presented in the Response.

Withdrawal of the Examiner's rejection and allowance of all claims currently of record in the Application are respectfully requested in view of the Amendment and Remarks presented in the Response.

Applicant has made the best faith effort to place the referenced Application in condition for allowance. However, if any issue raised by the Patent & Trademark Office has inadvertently been left unanswered, the Examiner is authorized to call the undersigned at the telephone number indicated hereinbelow.

Applicant respectfully petitions for three months extension of time for reply. A separate Petition and a check in the amount of \$ 460.00 are enclosed.

**III Version Of Claims And Paragraphs Of Specification**  
**With Markings To Show The Changes Made**

**Amendment of Claims**

1           1.     (amended) An apparatus for voice activated control of an  
2     electrical device, the apparatus comprising:

3                 receiving means for receiving at least one audio command  
4     generated by a user, [the] at least one audio command having a command  
5     word portion and a pause portion, each of the audio command portions  
6     being at least one syllable in length;

7                 speech [voice] recognition data having a command word  
8     portion and a pause portion, each of the speech [voice] recognition data  
9     portions being at least one syllable in length;

10                speech [voice] recognition means including a Hidden Markov  
11     Model for comparing said command word portion and said pause portion of  
12     said at least one received audio command with said command word portion  
13     and said pause portion, respectively, of said speech [voice] recognition data,

14 said speech [voice] recognition means generating at least one control signal  
15 based on said comparison, said speech recognition means prevents  
16 operation of the electrical device when the spectral content is dynamic;  
17 means for analyzing the pause portion of the received audio  
18 command for spectral content; and  
19 power control means for controlling power delivered to  
20 an electrical device, said power control means being responsive to said at  
21 least one control signal generated by said speech [voice] recognition means  
22 for operating the electrical device in response to said at least one audio  
23 command generated by the user.

1 3. (amended) The apparatus of claim 1, wherein said receiving  
2 means receives background noise data in conjunction with said audio  
3 command, and further comprising means for generating a command word  
4 score and a background noise score based on the comparison of the received  
5 audio command to the speech [voice] recognition data and the background  
6 noise data, respectively, said speech [voice] recognition means generating  
7 said at least one control signal when said command word score exceeds said  
8 background noise score.



1           4. (amended) The apparatus of claim 3, and further comprising:  
2                   means for analyzing the command word portion of the  
3 received audio command and the background noise data for energy content;  
4 and  
5                   means for comparing the energy content of the command word  
6 portion to the energy content of the background noise data and generating a  
7 corresponding energy comparison value;  
8                   wherein said speech [voice] recognition means prevents the  
9 generation of said at least one control signal when said energy comparison  
10 value is below a predetermined level.

1           5. (amended) The apparatus of claim 1, wherein said receiving means  
2 receives background noise data in conjunction with said audio command,  
3 and further comprising:  
4                   means for analyzing the command word portion of the receive  
5 audio command and the background noise data for energy content; and  
6                   means for comparing the energy content of the command word  
7 portion to the energy content of the background noise data and generating a  
8 corresponding energy comparison value;

9            wherein said speech [voice] recognition means prevents the  
10 generation of said at least one control signal when said energy comparison  
11 value is below a predetermined level.

1            6. (amended) The apparatus of claim 1, wherein each of said at least  
2 one audio command and said speech [voice] recognition data comprises [at  
3 least] first and second command word portions separated by said pause  
4 portion and further comprising a second pause portion having [at least] one  
5 syllable in duration before said first command word portion and a third  
6 pause portion having [at least] one syllable in duration after said second  
7 command word portion.

1            7. (amended) The apparatus of claim 1, wherein the speech [voice]  
2 recognition means further including a microcontroller with a fixed-point  
3 embedded microprocessor, the microprocessor is chosen from the group of  
4 8-bit and 16-bit [MCU] micro controller unit microprocessors.

1            8. (amended) A method of activating an electrical device through at  
2 least one audio command from a user, the method comprising the steps of:

3 recording speech [voice] recognition data having a command word  
4 portion and a pause portion, each of the speech [voice] recognition data  
5 portions being at least one syllable in length;

6 receiving at least one audio command from a user, the at least one  
7 audio command having a command word portion and a pause portion, each  
8 of the audio command portions being at least one syllable in length;

9 comparing said command word portion and said pause portion of said  
10 at least one received audio command with said command word portion and  
11 said pause portion, respectively, of said speech [voice] recognition data;

12 generating at least one control signal based on said comparison; [and]

13 controlling power delivered to an electrical device in response to said  
14 at least one control signal for operating the electrical device in response to  
15 said at least one received audio command;

16 analyzing the pause portion of the received audio command for  
17 spectral content; and

18 preventing operation of the electrical device when the spectral content  
19 is dynamic.


1        9. (amended) The method of claim 8, wherein the step of recording  
2        speech [voice] recognition data includes recording the voice of a user  
3        while the user utters said at least one audio command.

1        12. (amended) The method of claim 8 [10], and further comprising:  
2                ascertaining a first energy content for the command word portion  
3        of the received audio command;  
4                ascertaining a second energy content for the received background  
5        noise data;  
6                comparing the first and second energy contents and generating an  
7        energy comparison value; and  
8                preventing the generation of said at least one control signal when  
9        said energy comparison value is below a predetermined level.

1        16. (amended) The apparatus of claim 8, wherein each of said at least one  
2        audio command and said speech [voice] recognition data comprises at least first  
3        and second command word portions separated by said pause portion.

1 17. (amended) The apparatus of claim 14, and further comprising a second pause  
2 portion having [at least] one syllable in duration before said first command word  
3 portion and a third pause portion having [at least] one syllable in duration after  
4 [said] a second command word portion.

Respectfully submitted,  
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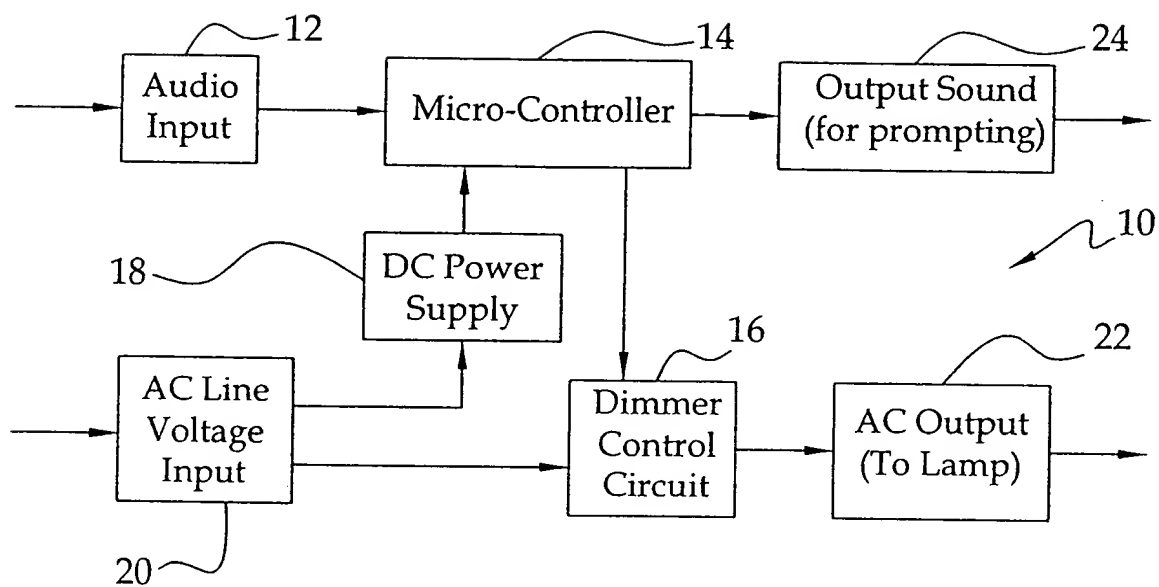


FIG. 1

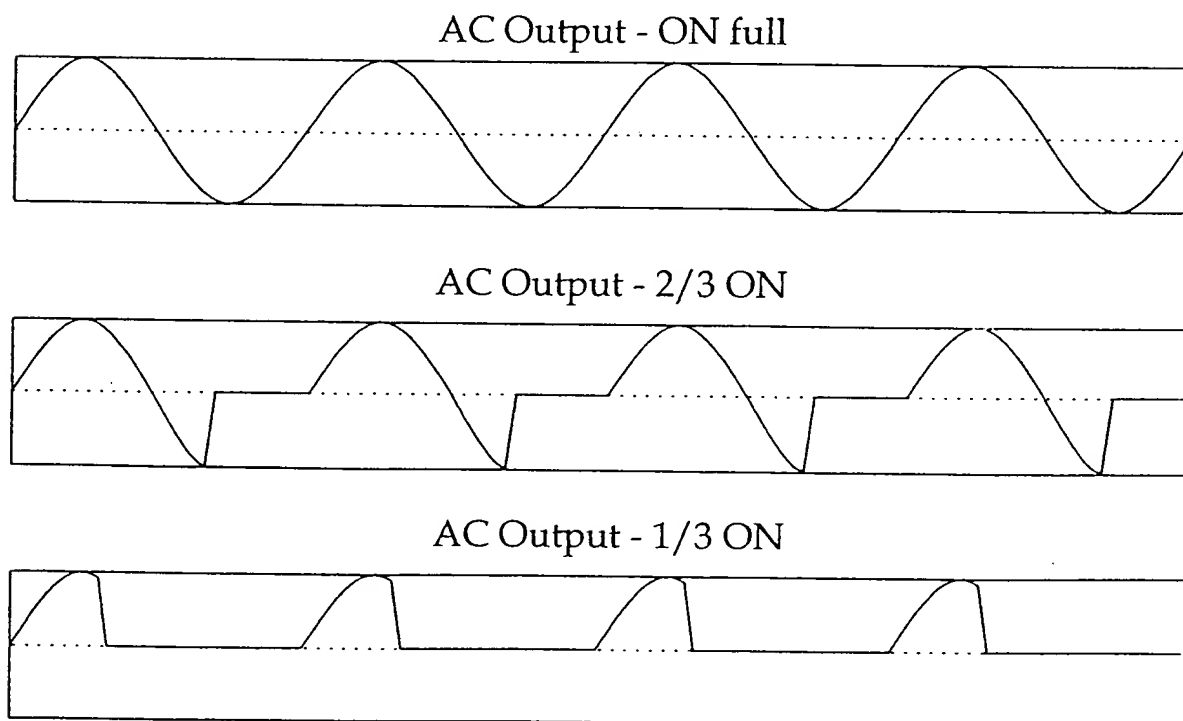


FIG. 2 PRIOR ART

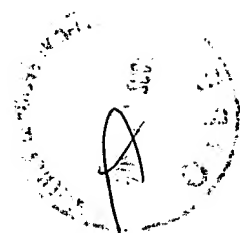


FIG. 8

